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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,961	12/23/2003	Feng Niu	CML01276J	9379

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EXAMINER

LA, NICHOLAS T

ART UNIT PAPER NUMBER

2617

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/743,961

Applicant(s)

NIU ET AL.

Examiner

Nicholas T. La

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-27 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### DETAILED ACTION

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

#### *Drawings*

1) New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because drawings need to be formal and not hand-written. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4) **Claims 1-5, 7-20, 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Overy et al. (WO 01/57547) and further in view of Ganesh et al. (US Patent No. 6,360,098).

Regarding **claims 1, 14**, Overy et al. teaches a method of determining a location of one of a plurality of units, each unit being communicatively coupled to at least some of the other plurality of units, wherein at least some of the plurality of units are reference units, whose locations are known, said method comprising:

communicating with the units within communication range of the unit to be located (Figure 1, 2, 3; page 4, line 1 to 20; page 5, line 1 to 8);

establishing a neighbor list for the unit to be located and each of a group of associated units, wherein the associated units are a subset of the plurality of units and include one or more units other than the unit to be located, which are located proximate to the unit to be located, the neighbor list including the list of the units that are in communication range of the respective associated unit (page 9, line 26 to page 11, line 11; page 14, line 3 to 8; page 14, line 8 to 11);

identifying any reference units contained in each of the neighbor lists of the unit to be located and the associated units (page 9; line 20 to 24 in term of the trustworthy indications);

determining an aggregate value (weighted calculation of the Master position) corresponding to the differences of occurrences of each of the reference units in the neighbor list of the unit to be located and the neighbor lists of each of the associated units to determine location that cannot be located and maybe located (page 13, line 16 to page 14, line 26); and

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determining the location of the unit to be located based upon the known locations of the reference units and the differences of identified occurrences of the reference units in the corresponding neighbor lists (page 14, line 21 to 26).

Overy et al. teaches the invention, however, does not expressly teach the number of occurrences. In an analogous art, Ganesh et al. teaches counting the number of occurrences to rank candidate according to detection of occurrences (Figure 8-11; col. 15, line 1 to 36). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Overy et al. to include counting the number of occurrences such as taught by Ganesh et al. in order to effectively locating a mobile within a ad-hoc network by gradually eliminating the locations that the mobile cannot be located or maybe located and therefore achieving locating the mobile.

Regarding **claims 2, 15**, Overy et al. further teaches a method wherein the associated units include the units within communication range of the unit to be located (page 4, line 1 to 25).

Regarding **claims 3, 16**, Ganesh et al. further teaches a method wherein determining an aggregate value corresponding to the number of occurrences of the each of the reference units in the neighbor list of the unit to be located and the neighbor lists of each of the associated units includes counting the number of occurrences (Figure 8, 9; col. 15, line 1 to 36).

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Regarding **claim 4**, Overy further teaches a method wherein counting the number of occurrences of each of the reference units in the neighbor list of the unit to be located, and the neighbor lists of a plurality of associated units includes counting the number of occurrences of each of the reference units in the neighbor list of the unit to be located and the neighbor lists of each of the units contained in the neighbor list of the unit to be located (page 14, line 12 to 26).

Regarding **claim 5**, Overy et al. further teaches a method wherein the location is determined based upon a weighted average of the locations of the identified reference units (page 13, line 4 to 23).

Regarding **claim 7**, Overy further teaches a method wherein the communication range of each unit is substantially the same (Figure 1, 2, 3; page 4, line 17 to 25; page 5, line 27 to 29).

Regarding **claims 8, 17**, Overy et al. further teaches a method wherein the communication range of the unit to be located is smaller than the average distance between reference units (Figure 3; page 7, line 1 to 23).

Regarding **claim 9**, Overy et al. further teaches a method wherein the reference units are substantially stationary (Figure 1; page 4, line 1 to 25).

Regarding **claims 10, 11**, Overy et al. further teaches a method wherein

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the substantially stationary reference units are proximately spaced at regular intervals a fixed predetermined distance apart in orthogonal directions (Figure 2; page 7; line 1 to 22).

Regarding **claims 12, 13**, Overy et al. further teaches a method wherein one or more of the reference units are mobile, and wherein as a reference unit moves the reference unit periodically updates the location of the reference unit (Figure 4; table on page 10; page 11; line 10 to 11; page 15, line 8 to 13).

Regarding **claim 18**, Overy et al. further teaches a location determination module wherein the neighbor list includes units within communication range of the transceiver (page 10, line 8 to 27; page 14, line 5 to 11).

Regarding **claim 19**, Overy et al. further teaches a location determination module wherein the location determining unit is incorporated as part of a mobile communication device (Figure 5, page 8, line 22 to page 9, line 16).

Regarding **claim 20**, Overy et al. further teaches a location determination module wherein the mobile communication unit is a cellular radiotelephone (Figure 1; page 4, line 1 to 16).

Regarding **claim 23**, Overy et al. further teaches a location determination module used in the system of a plurality of units, are mobile communication

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devices having an independent location determining device (page 4, line 1 to 16)

5) **Claims 21-22, 24-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Overy et al. (WO 01/57547) and in view of Ganesh et al. (US Patent No. 6,360,098) and further in view of Maloney (US Patent No. 6,288,675).

Regarding **claim 21**, Over et al. and Ganesh et al. teaches a location determination module, however, does not expressly teach wherein the location determination module is incorporated into equipment used by a group of individuals acting in concert. In an analogous art, Maloney teaches the location determination module is incorporated into equipment used by a group of individuals acting in concert (col. 6, line 22 to 29). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Overy et al. and Ganesh et al. to include the location determination module is incorporated into equipment used by a group of individuals acting in concert such as taught by Maloney in order to providing a combination of processes and attributes to form an inexpensive yet robust system for localization and identification as an adjunct to a communication system.

Regarding **claim 22**, Maloney further teaches a location determination module wherein the reference units, used in the system of a plurality of units, are stationary beacons spaced at regular intervals (col. 2, line 48 to 55).



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Regarding **claims 24, 25**, Maloney further teaches a location determination module wherein the independent location determining device includes a transceiver having a greater range than the transceivers of the location determination modules, the transceiver of the independent location determining device being adapted for communicating with a plurality of reference stations (Figure 5, col. 6, line 51 to 64; col. 14, line 65 to col. 15, line 8).

Regarding **claim 26**, Overy et al. further teaches a location determination module wherein the independent location determining device is adapted for at least one of measuring signal strength and determining time of arrival of a signal transmitted from at least some of the plurality of the reference stations (page 1, line 22 to 27).

Regarding **claim 27**, Maloney further teaches a location determination module wherein one or more of the discriminator and the calculation module includes one or more sets of prestored instructions contained within the storage area and to be executed by the processor (col. 11, line 21 to 46; col. 14, line 50 to col. 15, line 25).

***Allowable Subject Matter***

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6) **Claim 6** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 6**, the recited arts teach the invention, however, they fail to teach the amount of the weighting for a particular reference unit is determined by the ratio of the number of occurrences of the particular reference unit and the total number of occurrences of all reference units.

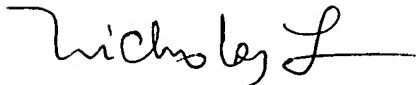
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas T. La whose telephone number is (571)-272-8075. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571)-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Nicholas La

**LESTER G. KINCAID**  
**SUPERVISORY PRIMARY EXAMINER**